
DRAFT STRATEGY
FOR COMBUSTION OF HAZARDOUS WASTE

U.S. ENVIRONMENTAL PROTECTION AGENCY

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DRAFT STRATEGY FOR COMBUSTION OF HAZARDOUS WASTE IN INCINERATORS
AND BOILERS AND FURNACES

I. INTRODUCTION

During the last decade, a dramatic transition in hazardous waste management has occurred. Untreated hazardous waste ceased to be placed on the land, and widespread use of waste treatment technologies, including combustion, ensued. We also began to understand that even vigorously regulated and enforced hazardous waste management requirements cannot totally solve our long-term waste problems. Rather, our long-term national waste management strategy must have reduction of waste as its first and primary goal.

EPA, the States, industry, and the public have learned much about the concept of waste reduction over the last decade. Our challenge for the next decade is to take these lessons and develop a strategy to accomplish our goal of source reduction.

Source reduction is and will continue to be at the top of our waste management hierarchy and must be more aggressively pursued to reduce the long-term demand for waste management facilities. EPA intends to take a fresh look at hazardous waste management issues as part of moving towards the promise of pollution prevention and source reduction. Specifically, in this effort, EPA's goal is to develop an integrated and balanced program for source reduction and waste management. EPA will examine the appropriate roles of source reduction and waste treatment in the nation's hazardous waste management system. EPA also intends to reexamine its existing regulations and policies on waste combustion.

This evaluation will be led by a committee of EPA and State officials. This EPA-State Committee will first be asked to address the relationship between hazardous waste combustion facilities and source reduction of hazardous waste, and to make recommendations on additional source reduction opportunities that should be pursued. The Committee's second charge will be to address how EPA could improve its technical and permitting rules for hazardous waste combustion facilities to ensure that such facilities reflect the state-of-the-art as well as continued technological innovation. The Committee will also be asked to explore the development of alternative waste treatment technologies, as well as the need for better science in evaluating combustion technologies and monitoring emissions from combustion facilities.

As a starting point for this effort, EPA is issuing this Draft Combustion Strategy. This document will serve as a

catalyst for discussion with and input from all interested parties on how best to integrate source reduction and waste combustion and on ways by which we can better assure the public of safe operation of hazardous waste combustion facilities.

This draft combustion strategy consists of a discussion of the goals and objectives for this project and a series of short and longer-term actions that can be taken to achieve our goals. These actions are intended as the starting point for discussions with the public and industry. The list of actions in this document are presented for debate and additional ideas. However, while that discussion is taking place, EPA intends to aggressively pursue several of the interim activities.

II. EPA'S STRATEGIC GOALS

A. Background for the Goals

Combustion is currently a large component of hazardous waste management in the United States. It has become a large component as the nation moved away from land disposal in the 1980's and into treatment to reduce the volume and toxicity of hazardous waste. As this shift occurred in the 1980's, citizens in areas where incinerators or boilers and industrial furnaces (BIFs) are located have increasingly challenged the need for these hazardous waste combustion facilities. Citizens evidence concern that waste combustion is too frequently used where source reduction may be the preferred alternative. Citizens also raise concerns regarding facility siting and potential health risks posed by waste management facilities.

Hazardous wastes being burned today are generated by major segments of American industry, and represent a spectrum of commonly-encountered wastes, including spent solvents, sludges and distillation bottoms, and off-spec organic chemicals and products. About 5 million tons of these highly organic wastes are being combusted each year -- some 40% in incinerators and 60% in BIFs. Based on our most recent data, it appears that substantial excess capacity exists for combustion of hazardous waste, particularly liquid wastes. It should also be recognized that although some additional wastes are untreated today, these wastes will soon be subject to treatment requirements mandated under the Hazardous and Solid Waste Amendments of 1984 (HSWA). These treatment requirements could use up much of today's surplus capacity over the next several years.

Incinerators and BIFs burning hazardous waste are regulated by EPA and authorized states under the Resource Conservation and Recovery Act (RCRA). EPA's incinerator permit regulations, first promulgated in 1981, control emissions of principal organic hazardous constituents (POHCs), hydrochloric acid (HCl), and

particulate matter at incinerators. For interim status incinerators, only general facility regulations are in place. In 1988, the Office of Solid Waste (OSW) issued guidance to the EPA Regional Offices directing that, on a case-by-case basis under the omnibus provision in RCRA section 3005(c), incinerator permits should be issued with major substantive improvements including controls on metals and products of incomplete combustion (PICs) and improved controls on HCl and acid gases.

BIF facilities burning hazardous waste are all currently in interim status. These facilities -- such as cement and lightweight aggregate kilns -- are subject to EPA regulations adopted in 1991. These regulations, among other things, impose emission controls for metals, PICs, and HCl and acid gases that remain in effect until final permits are issued for these facilities. Currently, there are about 160 interim status BIFs, which are pending final determinations on their permits.

Waste combustion has been viewed as a means to detoxify many hazardous wastes, particularly those containing high levels of organics. EPA's position has been that, if conducted in compliance with regulatory standards and guidance, combustion can be a safe and effective means of disposing of hazardous waste. As new information has come to light, improvements to the regulations governing BIFs and incinerators have been and will continue to be pursued.

EPA believes that our task now is to better integrate source reduction with the regulatory approach to combustion of hazardous waste, and further ensure that national rules reflect the best combustion controls possible. For example, we should broaden our approach to include consideration of how an aggressive source reduction program should factor into national policy on the permitting of hazardous waste combustion facilities. Of course, remediation wastes present a different circumstance than newly-generated wastes and, given the finite set of options for dealing with historic cleanup sites, combustion may be the most appropriate remedy. In addition, waste minimization opportunities at cleanup sites are usually severely limited. The EPA-State Committee will focus on these and other similar issues as part of the national dialogue on integration of source reduction and waste management.

B. EPA's Goals

The foundation of this draft strategy are the following five goals:

- o To establish a strong preference for source reduction over waste management, and thereby reduce the long-term

demand for combustion and other waste management facilities.

- o To better address public participation in setting a national source reduction agenda, in evaluating technical combustion issues, and in reaching site-specific decisions during the waste combustion permitting process.
- o To develop and impose implementable and rigorous state-of-the-art safety controls on hazardous waste combustion facilities by using the best available technologies and the most current science.
- o To ensure that combustion facilities do not pose an unacceptable risk, and use the full extent of legal authorities in permitting and enforcement.
- o To continue to advance scientific understanding with regard to waste combustion issues.

These goals address the major issues surrounding hazardous waste combustion today and provide an appropriate framework for a broad assessment of how source reduction and combustion of hazardous waste can be integrated into a national waste management program. This assessment will be comprised of many different activities, many of which will be led by the EPA-State Committee. The Committee and other interested parties are encouraged to examine these goals critically and to consider whether and how they can be improved.

III. THE PROCESS FOR PURSUING A NATIONAL STRATEGY

Under RCRA, EPA and the States are partners and co-regulators of the generation, transportation, treatment, storage, and disposal of hazardous waste. EPA therefore is firmly committed to the view that any evaluation of the role of hazardous waste combustion in our hazardous waste management strategy must be undertaken as a joint federal and state effort. To that end, an EPA-State Committee will be formed under the aegis of the EPA-State Operations Committee. As mentioned earlier, the initial charge to this Committee includes components dealing with aggressive source reduction, improvements to technical and permitting standards, alternative treatment technologies, and a better scientific foundation for decision making.

In each of these areas, this draft strategy lays out a series of short and longer-term actions for public discussion. EPA intends to involve all stakeholders in this dialogue. EPA is providing these ideas as a starting point for discussion on

needed source reduction actions and regulatory changes that must be pursued, and encourages all interested parties to comment upon and contribute additional ideas. In addition, however, EPA believes that we must immediately pursue a number of actions to ensure that existing combustion facilities are operated safely and without unacceptable risks to human health and the environment. Accordingly, while we implement the elements of this strategy, EPA is directing its Regions to immediately take actions to pursue aggressive source reduction programs at hazardous waste facilities, and to ensure that waste combustion is closely controlled through permitting and aggressive enforcement.

Both EPA and the EPA-State Committee will seek to engage the widest range of interested parties in our evaluation of source reduction and waste combustion. This will include federal, state, and local officials, waste generators and treaters, the waste combustion industry, environmental and citizen groups, and members of the public at large. Meaningful participation by, and communication among, all affected parties is a cornerstone of EPA's federal hazardous waste program. We intend to take all steps necessary to foster this participation and communication.

EPA is also keenly aware that, ultimately, we serve the public. Our mission under RCRA, and that of the authorized states, is explicit -- we must ensure adequate protection of human health and the environment. EPA fulfills this responsibility in the light of full public scrutiny. We will continue to do so during this reevaluation of the role of combustion in our national waste management strategy.

IV. ACTIONS TO IMPLEMENT STRATEGIC GOALS

All waste management technologies must assure full protection of human health and the environment. EPA will not tolerate operation of waste management facilities that present unacceptable risks to human health and the environment. Accordingly, EPA will engage in a series of short and longer-term actions designed to pursue aggressive source reduction, to enhance controls on existing combustion facilities, and to promote public participation in permitting and source reduction efforts.

The short term actions include:

- o An aggressive source reduction program that integrates waste combustion with waste management decision making
- o Direction to EPA Regions and states to:

- Perform site-specific risk assessments, including indirect exposure, at incinerator and BIF facilities in the permitting process
- Use omnibus permit authority in new permits at incinerator and BIF facilities as necessary to protect human health to impose upgraded particulate matter standards and if necessary additional metal emission controls, and to impose limits on dioxin/furan emissions
- Establish a priority for reaching final permit decisions for incinerators and BIF facilities
- Enhance public participation in permitting of incinerators and BIFs
- Enhance inspection and enforcement for incinerators and BIFs.

The longer-term actions include:

- o Continued efforts to build an aggressive source reduction program, including exploration of the usefulness and feasibility of setting a national capacity reduction goal for generation of combustible waste
- o Investigation of feasibility and risks associated with alternative waste treatment technologies
- o Upgrades to EPA's rules on emission controls at combustion facilities and on continuous emission monitoring techniques
- o Upgrades to EPA's rules on the permitting and public involvement process for combustion facilities

A. Short Term Actions

1. Integration of Aggressive Source Reduction and Waste Combustion
 - o Use of permit priorities to stimulate source reduction

Over the next 18 months, as the national dialogue on source reduction is held, EPA will give low priority to permit-related requests for additional combustion capacity except where that capacity offsets the retirement of existing combustion capacity.

The Agency will consider such requests for additional combustion capacity only if the new capacity would provide a substantial reduction in emissions. These administrative measures will allow the Agency to focus as a priority matter on assuring the safety of currently operating facilities. Furthermore, to the extent any new capacity is considered, it will be state-of-the-art combustion units designed to achieve more efficient combustion and lower emissions. These measures will extend to new permit applications, modifications to existing permits to expand combustion capacity, and expansion of interim status combustion operations.

- o Publication of final "Waste Minimization Program in Place" guidelines.

These guidelines identify the elements of a waste minimization program for generators and facilities to make a proper certification to EPA that they have a waste minimization program in place, as required by the RCRA statute. EPA will also pursue compliance with the enhanced certification requirements to the maximum extent permitted under RCRA authority. EPA is also considering publication of lists of non-compliers to alert the public and the waste treatment industry. Where legally appropriate, EPA may also use enforcement orders and permits to incorporate the elements of a good waste minimization program into the set of requirements that a facility must meet.

- o Work with the waste treatment industry as a means to get more aggressive action on source reduction from the generators of combustible waste.

EPA will ask treatment companies to consider accepting wastes only from customers that have conducted source reduction audits and have an enhanced waste minimization program in place (per EPA's "Program in Place" notice). In doing so, we hope that a working partnership can be established among the regulatory agencies, the treaters, and the generators such that we can achieve, as a national priority, the maximum amount of source reduction possible. All interested parties must pursue an aggressive source reduction program. EPA will work closely with the treatment industry to identify additional opportunities for source reduction.

- o Target generating industries that produce combustible wastes both for source reduction inspections and for requiring generators to conduct waste minimization audits.

EPA will give top priority to ensuring compliance with waste minimization requirements/guidance at those facilities that are driving the demand for waste combustion. In addition, at the same facilities, EPA will to the maximum extent possible include audit requirements in enforcement settlement agreements, permits, and as part of corrective action orders. The audits will allow these companies to investigate the maximum possible use of source reduction to the extent that they are not already doing so in partnership with EPA and the states.

- o Maximum public involvement and information regarding source reduction and its integration with waste combustion

EPA will also establish a program to more effectively provide information to the public on the types of wastes going to combustion units and the sources of those wastes. First, EPA will compile information from the Biennial Report and will collect information from commercial combustion facilities. This information -- such as the specific types and volumes of wastes being sent for combustion as well as the generators of these wastes -- will be compiled in a report and be provided to the public. This information will apprise citizens of those industries that rely on combustion of their wastes and will allow the public to better focus their attention on the appropriate generating facilities.

2. Immediate Actions in Combustion Facility Permitting

The Agency's goal is to continuously improve the regulation of hazardous waste combustion to reflect advances in scientific understanding so that adequate protection of human health and the environment is assured. During the time it takes to propose and finalize updates to national regulations, EPA will use its omnibus authority on a case-by-case basis as necessary to protect human health and the environment to include the appropriate conditions in permits being issued.

At this time, EPA believes that regions and states should use the RCRA omnibus provision and RCRA permit modification regulations to add permit conditions as necessary to protect human health and the environment whenever a combustion facility owner/operator is seeking issuance of a new permit or reissuance of an expiring permit, or, in appropriate circumstances, when

existing permits are reopened for modification. The following will be addressed during the permitting process.

o **Risk Assessments**

EPA is directing that site-specific risk assessments be conducted at incinerators and BIFs during the permitting process. These should be done in accordance with EPA's draft indirect risk assessment guidance. EPA is currently developing updated, final guidance on conducting risk assessments at combustion facilities, including consideration of the risks from indirect exposures. Until this national risk assessment guidance is completed, all risk assessments at combustion facilities will be done on a site-by-site basis. EPA and State technical experts will be available to serve on risk assessment teams to assist regions and states in conducting these risk assessments (particularly with regard to indirect risks).

o **Upgraded Particulate Matter Standard and Supplemental Controls on Metal Emissions**

Hazardous waste combustion units should be required, through appropriate use of the omnibus permit authority, to meet the more stringent particulate matter standard that is now applicable to municipal waste combustors -- 0.015 mg/dscm. This technology-based standard operates to provide a major control on metals emissions from combustion unit. In addition, each combustion facility should be required to consider, as part of its facility-specific risk assessment, whether the upgraded PM standard affords adequate protection against the risks posed by metals. If additional metal controls are found to be necessary, the regions and states should impose these controls through use of the omnibus permit authority.

The upgraded PM standard will be used for BIFs unless another protective standard is applicable under state or federal law. These upgraded PM standards will continue to be used until an alternative PM standard has been promulgated for incinerators and BIFs. It may be that the upgraded PM standard is sufficient for many combustion facilities. However, some combustion units may be emitting metals above de minimis quantities, in which case additional controls may be warranted.

o **Dioxins and Furans**

Site specific risk assessments at hazardous waste combustion facilities may reveal the need for additional controls on dioxin and furan emissions. Through appropriate use of the omnibus permit authority, the regions and states should impose as an

interim measure emission limits of 30 ng/dscm (based on the sum of all tetra through octa dioxin and furan congeners). This standard is the same as the New Source Performance Standard for new municipal waste combustors. Regions and states should supplement this with more stringent emission limits if the site-specific risk assessment warrants.

o Permit Controls on Incinerators and BIFs

EPA regions and states should bring incinerators and BIFs under permit controls as soon as possible. This will be implemented through establishment of a schedule for calling in all BIF permits for final determinations. Each region will develop a plan that provides for commercial BIF permits to be called in within the next 12 months and for all other BIF permits to be called in within the succeeding 24 months. Permits represent one of the most effective means by which EPA and the authorized states can develop and enforce conditions on the operation of incinerators and BIFs. At this point, no BIFs have had final permit decisions. Thus, permit determinations should be made as expeditiously as feasible to effectively control those operations that can be operated safely as well as deny permits at those facilities that can not be operated safely.

o Enhanced Public Participation

Public participation is one of the major cornerstones of EPA's environmental programs. EPA is committed to meaningful public involvement in its permitting programs. Local citizens must be given the opportunity to assure themselves that facilities in their neighborhoods will be operated safely.

EPA will immediately provide for greater public participation in the permitting of BIFs and incinerators, and will initiate amendments to its rules to reflect new avenues for public participation. Prior to these amendments being finally adopted, EPA will direct all regions and states to provide immediately for additional public participation opportunities during permitting of combustion units - particularly at earlier stages than now provided for under EPA's current permitting regulations. These should include, but are not limited to, public comment on the trial burn plan. EPA will also direct that local citizens be given the opportunity to participate during the risk assessment process at combustion facilities.

o Enhanced Inspection and Enforcement

EPA will continue and enhance its current enforcement efforts regarding combustion units through aggressive inspection

and enforcement at both BIFs and incinerators and through use of specialized combustion inspectors. Based on our experience and the level of public concern about the compliance record of commercial combustion units, the use of aggressive enforcement and special inspectors will ensure the maximum timeliness and extent of compliance. In particular, if an event occurs that results in non-compliance, EPA or the state will be in a position to take the appropriate enforcement or permitting action, including abatement of the problem or, if necessary, shutdown of combustion operations. Whenever appropriate, Regions and States are encouraged to use permanent on-site inspectors at commercial incinerators and BIFs.

B. Longer Term Actions

EPA will also immediately pursue a number of longer term actions to continue the progress towards our goals of source reduction, balancing the amount of combustion capacity with the actual needs, ensuring combustion safety, and providing for greater public participation.

o Continue to build an aggressive source reduction program

EPA will conduct a national round table on source reduction opportunities for hazardous wastes. The national round table on source reduction will seek to highlight avenues for reducing the amount of waste being combusted, and will explore the appropriate balance between source reduction and use of combustion as a waste management tool. The round table will explore both regulatory and non-regulatory options to encourage and/or require source reduction. Generating and treatment industries will be asked to participate actively in this effort. Results will also be used by the EPA-State Committee to establish a national dialogue among the interested parties on the proper integration of source reduction and waste combustion.

o Establishment of a Percent/Target Year Program for reduction of combustible hazardous wastes

EPA will work with the states towards establishing a program in which industry is challenged to reduce by a selected percentage and by a target year the amount of process wastes going to combustion units. EPA will discuss with all interested parties the appropriate percentage reduction to be used as a goal and the appropriate time frame for this reduction.

- o Upgrade EPA's rules to reflect state-of-the-art advancements

EPA will initiate a rulemaking to upgrade our combustion rules. In doing so, EPA will explore the feasibility of a technology-based approach, particularly with respect to setting emission controls on metals, dioxins and furans, acid gases, particulate matter, and products of incomplete combustion. In addition, EPA will continue to refine its risk assessment guidelines to ensure that all risks are effectively addressed by national regulations or site-specific permit conditions.

- o Upgrade EPA's rules on permit process for combustion units

While EPA is directing regions and states to immediately afford greater public participation on a permit-by-permit basis, we will seek to modify our rules to reflect expanded public participation. EPA will initiate a rulemaking to codify our goal of increased public participation at earlier stages in the permitting process for incinerators and BIFs. In particular, EPA will address the trial burn process and the public's role in that process.

EPA also believes there is a need to explore a rulemaking to reform the permit appeal process for combustion units whose permit applications have been denied by the Regional Administrator or State Director. In particular, where the unit has been burning waste under interim status, EPA will seek to establish rules that prevent the continued burning of waste during administrative appeals of a permit denial decision. EPA will also explore additional guidance or a rulemaking to clarify the number of permissible trial burns allowed before permit denial.

- o Use and Feasibility of a Long-Term National Capacity Reduction Goal

EPA will explore the usefulness of developing a long-term reduction goal (e.g., a 25% reduction in combustion capacity over the next 10 years) to reduce combustion capacity beyond that which can be achieved through source reduction efforts. The purpose of such a goal would be to give more concrete national guidance on how best to mesh combustion demand with capacity.

- o Conduct research on continuous monitoring for organics, including dioxins and metals.

EPA will use its research resources to continue and enhance scientific inquiry on ways to better determine what constituents are in emissions from combustion units and to develop the technology needed to monitor these emissions on a continuous basis. EPA will work cooperatively with the waste combustion industry to address these research areas.

- o Investigate innovative waste treatment technologies that provide protection to human health and the environment.

EPA will continue and enhance its efforts to foster the development of innovative technologies for the safe and effective treatment of hazardous waste. Such actions are essential to our national waste management system and to our global competitiveness.

V. CONCLUSION

EPA is committed to evaluating the role that source reduction and combustion of hazardous waste should play in our national waste management program. EPA will work in full partnership with the States in this effort. EPA and the States will embark upon a full and open discussion with all stakeholders, including affected citizens and industries, on the issues and actions detailed in this Draft Combustion Strategy.